National Institute of Environmental Health Sciences

Ecology of hantavirus in a changing world

Author(s): Dearing MD, Dizney L
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Abstract:

Hantavirus is a genus of virus represented by 45 different species and is hosted by small mammals, predominantly rats and mice. Roughly, half of all hantaviruses cause diseases in humans that vary in morbidity from mild to severe. The natural and anthropogenic changes occurring in the environment appear to be impacting the ecology of hantaviruses and their natural hosts as well as the incidence of hantaviral diseases in humans. Although such studies are limited at this time, there is evidence that natural climate cycles such as El Nino as well as anthropogenic climate change enhance hantavirus prevalence when host population dynamics are driven by food availability. Climate appears to have less of an effect on hantavirus when host populations are controlled by predators. Human alteration to the landscape also appears to enhance hantavirus prevalence when the disturbance regime enriches the environment for the host, for example, agriculture. More long-term studies on multiple species of hantavirus are needed to accurately predict the outcome of changing environmental conditions on prevalence in hosts as well as disease incidence in humans.

Source: http://dx.doi.org/10.1111/j.1749-6632.2010.05452.x

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, El Nino Southern Oscillation, Meteorological Factors, Precipitation, Temperature, Other Exposure

Temperature: Fluctuations

Other Exposure: North Atlantic Oscillation; Pacific Decadal Oscillation

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Zoonotic Disease

Zoonotic Disease: Hantavirus Pulmonary Syndrome

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified